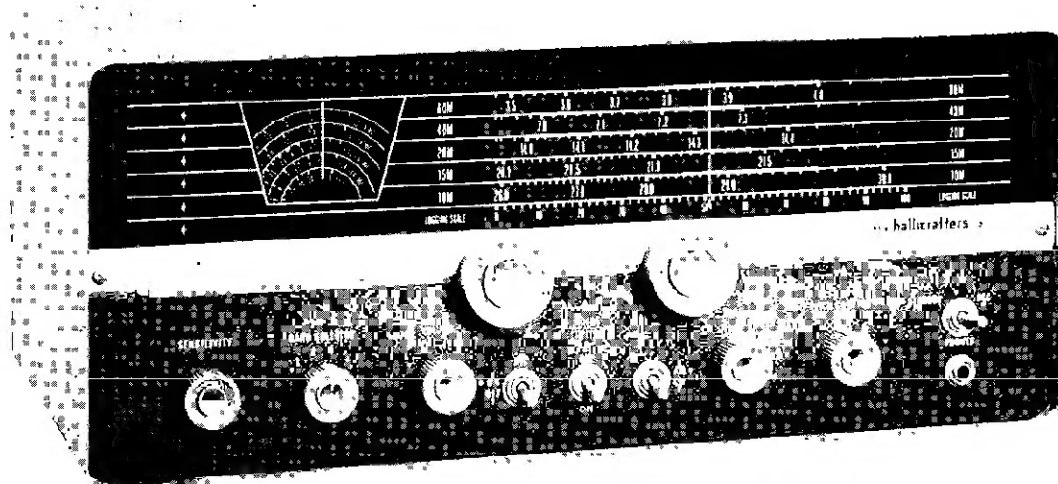




the hallicrafters co.

MANUFACTURERS OF ELECTRONIC EQUIPMENT, CHICAGO 24, U. S. A.



092-104533

Figure 1. Hallicrafters Model S-108.

SECTION I

GENERAL DESCRIPTION

1-1. INTRODUCTION.

Your new Hallicrafters Model S-108 is a precision built, highly sensitive, communications receiver providing complete coverage in the frequency range of 538 kilocycles to 34 megacycles. Eight tubes, including one rectifier, are employed in the latest superheterodyne circuit and provision is made for the reception of AM or CW signals over the entire tuning range.

For ease and flexibility of operation, two tuning dials are provided. The circular dial provides the general frequency coverage, while the slide rule type dial (the handsread dial) is specifically calibrated for the 80, 40, 20, 15 and 10 meter bands.

For increased selectivity, an automatic noise limiter circuit can be switched into operation to provide a means of receiving many signals that would be lost in background noise with ordinary receiving equipment.

Other special features include full range TONE

control, SENSITIVITY control with provision for the optional use of AVC, a STANDBY-RECEIVE switch that permits silencing the receiver while maintaining it ready for instant use, without waiting for the tubes to warm up, and a headphone (PHONES) jack mounted on the front panel. Also included is a built-in Alnico V permanent magnet speaker for assured lifelike reproduction.

IMPORTANT

Careful attention should be directed to the "INSTALLATION" and "OPERATION" instructions. They have been provided to insure the satisfaction you have a right to expect from any Hallicrafters "Precision Built" product. Your receiver has an unusually high degree of sensitivity necessary to receive weak and distant stations. Careless operation of a high sensitivity receiver may result in excess noise or background hiss. These undesirable effects can be held to a minimum by careful adjustment of the SENSITIVITY, TUNING, and TONE controls as well as the proper selection and arrangement of the antenna.

SECTION II INSTALLATION

2-1. UNPACKING.

After unpacking the receiver, examine it closely for damage which may have occurred in transit. Should any sign of damage be apparent, file a claim immediately with the carrier stating the extent of damage. Carefully check all shipping labels and tags for instructions before removing or destroying them.

2-2. LOCATION.

The receiver is equipped with rubber mounting feet for table or shelf mounting. When locating the receiver, avoid excessively warm locations such as those near radiators and heating vents. Allow at least one inch of clearance between the back of the receiver and the wall for proper ventilation.

2-3. POWER SOURCE.

The S-108 receiver is designed to operate from a 105-125 volt, 50-60 cycle AC power source. Power consumption is 75 watts.

IMPORTANT

If in doubt about your power source, contact your local power company prior to inserting the power cord into an AC power outlet. Plugging the power cord into the wrong power source may cause extensive damage to the unit, requiring costly repairs.

2-4. ANTENNAS.

The RF input of the receiver is designed for operation from either a single-wire antenna, or a half-wave doublet or other tuned antenna with transmission line impedances from 52 to 600 ohms. Antenna connections are made to a three-terminal strip at the rear of the receiver marked "A1", "A2", and "G".

2-4-1. SINGLE WIRE ANTENNA.

The simplest antenna and one which will provide satisfactory results throughout the entire tuning range is a conventional single-wire antenna. In most localities, good results can be obtained with just the 15-

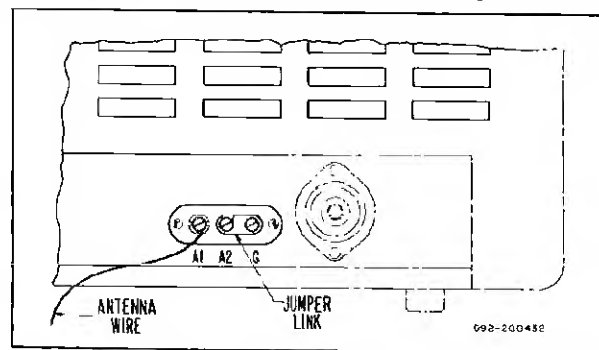


Figure 2. Single Wire Antenna.

foot length of antenna wire supplied with the receiver. Simply attach one end of this wire to terminal "A1", connect the jumper link between terminals "A2" and "G", and then run the wire about the room in any convenient manner. (See Fig. 2.) If the receiver is operated in a steel constructed building or where receiving conditions are exceptionally poor, an outside antenna should be erected as high as possible and kept free from surrounding objects. In some locations, reception may be improved by connecting a ground wire (ordinary copper wire) from terminal "G" to a cold water pipe or outside ground rod. While the use of an outside ground rod installed in accordance with Insurance Underwriter's Laboratories requirements is adequate protection against lightning, we strongly recommend an additional connection to the nearest cold water pipe to eliminate any shock hazard.

2-4-2. HALF-WAVE DOUBLET ANTENNA.

For top performance, a half-wave doublet or other type of antenna employing a 52 to 600-ohm transmission line is recommended. A typical doublet antenna installation is shown in Fig. 3. The doublet antenna should be cut to the proper length for the most used frequency or band of frequencies. The overall length in feet of a doublet antenna is determined by the following formula:

$$\text{Length in feet} = \frac{468}{\text{Frequency in megacycles}}$$

When erecting the doublet antenna, it should be remembered that it displays directional properties broadside to its length and should be so oriented with respect to a desired station for maximum signal pick-up.

The doublet antenna may be fed with either a balanced or unbalanced transmission line. When a balanced transmission line such as "twin-lead" or a twisted pair is used, the transmission line connects to terminals "A1" and "A2", and the jumper link between terminals "A2" and "G" is disconnected. When using an unbalanced transmission line such as coaxial cable, the inner conductor connects to terminal "A1", the outer braid connects to terminal "A2", and the jumper

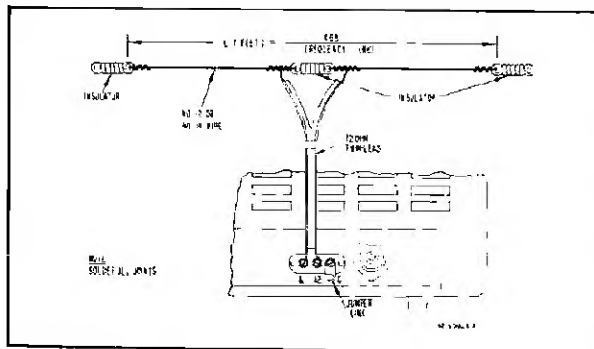


Figure 3. Doublet Antenna Using
Twin-Lead Transmission Line.

ected has too strong a signal, excessive background hiss or distortion may be present. If this undesirable effect is produced, it can be greatly reduced by turning the SENSITIVITY control in the counterclockwise direction to a slightly lower setting. If, after reducing the sensitivity more volume is needed, advance the VOLUME control. When receiving CW signals, a setting of the SENSITIVITY control that is too high will be evidenced by "thumping" (overloading).

3-3. BAND SELECTOR CONTROL.

The BAND SELECTOR control should be set for the band you wish to tune. The four positions of this control correspond to the band numbers at either side of the main tuning dial.

3-4. AM-CW SWITCH.

Set this switch at "AM" to listen to voice broadcasts. Set it at "CW" only, if you wish to hear code signals.

3-5. AVC SWITCH.

The AVC switch, when set at "ON", places the automatic volume control circuit in operation to maintain a uniform volume level, regardless of variations in signal strength at the antenna. For AM reception, this switch should normally be set at "ON". For CW reception, this switch should be set at "OFF".

3-6. NOISE LIMITER SWITCH.

This switch should normally be set at "OFF". If severe electrical disturbances, ignition noise, or other types of pulse-type noise interfere with reception, set the switch at "ON" to place the Automatic Noise Limiter circuit in operation.

3-7. VOLUME CONTROL.

This control is used to regulate receiver volume. Clockwise rotation increases volume; counterclockwise rotation decreases volume.

3-8. PITCH CONTROL.

This control is used to vary the pitch of code signals, and should be set for the tone most pleasing to the operator. For this control to have any effect, the AM-CW switch must be set at "CW".

3-9. TONE CONTROL.

The TONE control is a combination receiver ON-OFF switch and 3-position TONE control. In the "PWR OFF" position, the receiver is inoperative. To turn the receiver on, simply rotate the control to any of its three remaining positions. For AM reception, set the control for the desired tonal quality. For CW reception, set the control at "LOW".

3-10. TUNING AND BANDSPREAD CONTROLS.

The TUNING and BANDSPREAD controls are used in conjunction with one another to tune in the desired signal. Wide tuning is performed with the TUNING control and fine tuning with the BANDSPREAD control.

A. MAIN TUNING DIAL.

The main tuning or left-hand dial is operated by the TUNING control. This dial has four calibrated scales, one for each of the four frequency bands covered by the receiver. It also contains a 20 division logging scale for accurately logging and relocating stations of special interest. The main tuning dial should be set for the desired station frequency after the BANDSPREAD control has been set fully clockwise (minimum bandspread tuning capacity).

IMPORTANT

The receiver frequency readings or calibration on the main tuning dial will be correct only if the BANDSPREAD control has been set fully clockwise. If it is set at any other setting, the additional bandspread capacity added to the main tuning capacity will throw off the main tuning dial calibration, because the receiver has been calibrated with the bandspread tuning capacitor set at minimum.

The dial settings for the 80, 40, 20, 15, and 10 meter bands are indicated on the main tuning dial by white dots. When tuning with the bandspread dial, the main tuning dial must be set at the dot corresponding to the desired band. The 160 meter band is indicated on the dial by three short double-weight lines.

B. BANDSPREAD DIAL.

The bandspread or right-hand dial is operated by the BANDSPREAD control. This dial contains five scales calibrated for the 80, 40, 20, 15, and 10 meter bands. These five scales are calibrated to read receiver frequency directly when the main tuning dial has been set to the index dot of the desired band. For convenience in tuning, the AM phone bands are indicated on the bandspread dial by double-weight lines.

The bandspread dial may also be utilized as a fine tuning adjustment over any portion of the receiver tuning range. Two methods of fine tuning are described below.

(1). The first method of fine tuning is used when it is desired to tune in a single signal with precision accuracy. First the BANDSPREAD control is set a few degrees from its full clockwise position, then the desired signal is located with the TUNING control, and finally the signal is accurately tuned in by "rocking" the BANDSPREAD control (turning it slightly to the left and right) until the signal is loudest and clearest.

(2). The second method of fine tuning is used when it is desired to tune through a group of signals. With the BANDSPREAD control set fully clockwise, adjust the TUNING control to tune in the highest-frequency signal in the group. The other

signals can then be heard by slowly turning the BANDSPREAD control in a counterclockwise direction.

3-11. STANDBY-RECEIVE SWITCH.

This switch, normally set at "REC", permits you to silence the receiver without turning it off. To silence the receiver, set the switch at "STANDBY". In this position, the RF and IF stages are cut off, but the tube heaters remain at operating temperature for instant use. To resume reception at any time, simply return the switch to the "REC" position.

3-12. SERVICE OR OPERATION QUESTIONS.

For any further information regarding operation or servicing of your receiver, contact your Hallicrafters dealer. The Hallicrafters Co. maintains an extensive system of authorized service centers where any required service will be performed promptly and efficiently at a nominal charge. All Hallicrafters Authorized Service Centers display the sign shown to the right. For the location of the one nearest you, consult your dealer or telephone directory.



Do not make any service shipments to the factory unless instructed to do so by letter. The Hallicrafters Company will not accept the responsibility for any unauthorized shipments.

The Hallicrafters Co. reserves the privilege of making revisions in current production of equipment and assumes no obligation to incorporate these revisions in earlier models.

SECTION IV SERVICE DATA

4-1. TECHNICAL SPECIFICATIONS.

TUBES Eight (including rectifier)
SPEAKER..... 5 inch PM; 3.2 ohm voice coil
HEADPHONE OUTPUT Low impedance
(See Par. 2-5)
ANTENNA INPUT For single wire or 52-600 ohm
balanced or unbalanced line.
POWER SOURCE..... 105-125 volts, 50-60 cycles AC
POWER CONSUMPTION..... 75 watts
RECEPTION..... AM and CW
INTERMEDIATE FREQUENCY 455 KC
AUDIO OUTPUT IMPEDANCE..... Matches 3.2 ohm

DIMENSIONS .. 18 3/4" wide x 10 1/4" deep x 8" high
WEIGHT, Net..... 28 lbs., 4 oz.
WEIGHT, Shipping 32 lbs.

FREQUENCY COVERAGE

Band	Frequency Range	Calibrated Band Spread
1	.538 - 1.6 MC	-
2	1.55 - 4.6 MC	80M
3	4.6 - 13.0 MC	40M
4	12.0 - 34.0 MC	20, 15, and 10M

4-2. TUBE AND DIAL LAMP REPLACEMENT.

To gain access to the tubes and dial lamps, see

"CHASSIS REMOVAL". The tube locations, as well as their functions, are shown in Fig. 6.

4-3. CHASSIS REMOVAL.

The chassis and front panel assembly are removable from the cabinet as a unit by removing the three screws at each side of the front panel and the five screws on the underside of the cabinet. When removing the chassis from the cabinet, care should be taken not to damage or disturb any of the variable adjustments.

4-4. DIAL CORD RESTRINGING.

To restring the TUNING or BANDSPREAD dials, first remove the chassis from the cabinet. See "CHASSIS REMOVAL". Remove the front panel from the cabinet by removing the control knobs, the four toggle switch and PHONES jack decorative nuts, and the two screws at the bottom of the front panel. Then remove the main tuning dial to gain access to the drive pulleys. For stringing details, refer to Fig. 5. Note that stringing is done with the TUNING and BANDSPREAD gangs fully meshed. After stringing is completed, cut off the excess dial cord and apply a drop of quick drying cement to the knots.

With the TUNING and BANDSPREAD gangs fully meshed, replace the dial so that the index marks at the low frequency end of the dial are in line with the hairline on the dial window.

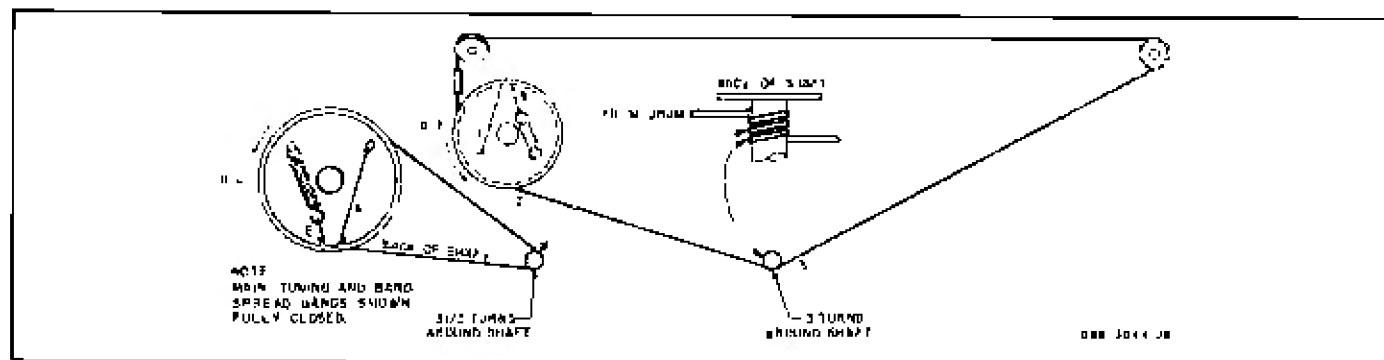


Figure 5. Dial Card Stringing Diagram

SECTION V ALIGNMENT

5-1. GENERAL.

This receiver has been carefully aligned at the factory by specially trained personnel using precision equipment. Alignment of the receiver should not be attempted until all other possible causes of faulty operation have been investigated. Alignment should not be required unless the receiver has been tampered with or component parts have been replaced in the RF or IF stages. Alignment should only be made by persons familiar with communications receivers and experienced in their alignment. Refer to Figs. 6 and 7 for location of all alignment adjustants.

5-2. EQUIPMENT REQUIRED.

1. Signal generator covering 455 KC to 26 MC.
2. Output meter (or AC scale of VTVM). Connect meter from 3.2 ohm speaker terminal to ground.

3. Non-metallic alignment tool.
4. Standard RTMA dummy antenna shown in Fig. 8.
5. 0.02 mfd. capacitor.

5-3. INITIAL CONTROL SETTINGS.

BAND SELECTOR As indicated in chart.
 SENSITIVITY AND VOLUME Maximum.
 NOISE LIMITER AND AVC OFF
 STANDBY-RECEIVE REC
 TONE HIGH
 AM-CW AM
 TUNING Fully clockwise
 BANDSPREAD Extreme right position.

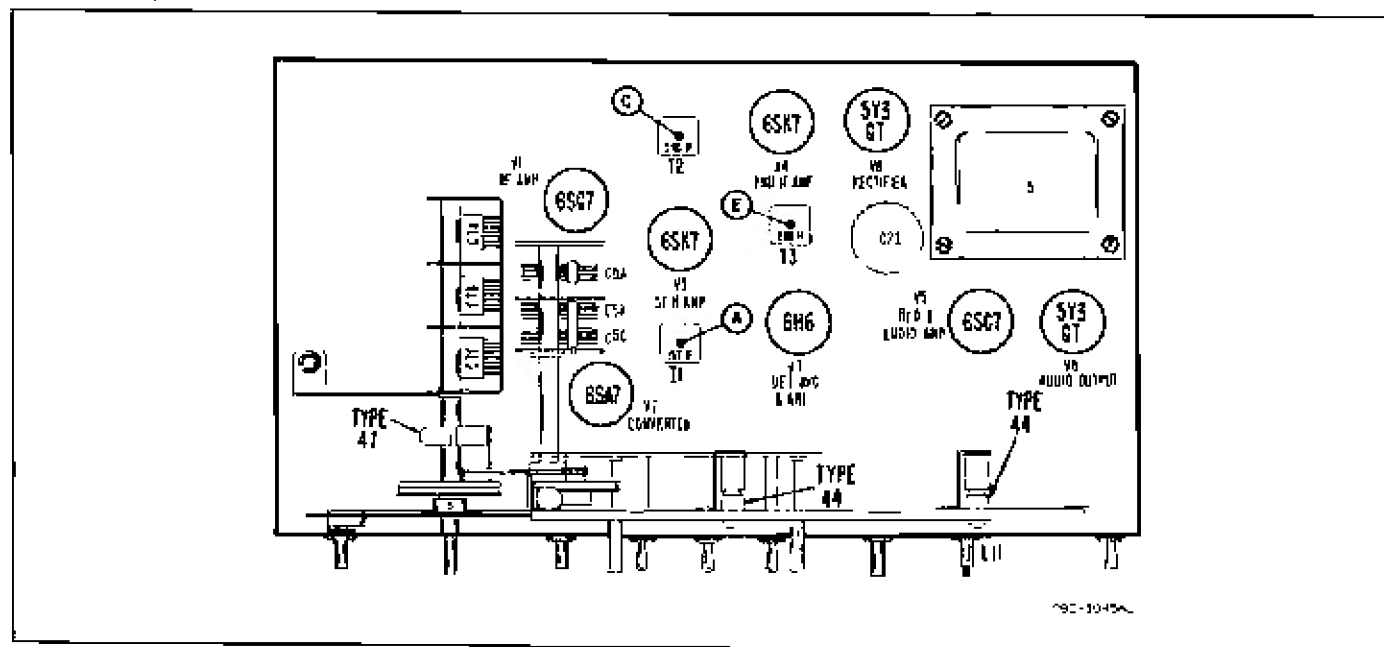


Figure 6. Top View Chassis Tube Locations and Alignment Points

3-4. ALIGNMENT PROCEDURE.

The local oscillator frequency is higher than the signal frequency on bands 1, 2, and 3, and lower than the signal frequency on band 4. RF alignment can be made with chassis in cabinet. Holes in bottom of cabinet provide access to all RF adjustments. For IF alignment, remove chassis from cabinet. Use just enough generator output to maintain a 500 milliwatt reading on the output meter.

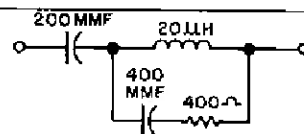


Figure 8. RTMA Dummy Antenna.

IF ALIGNMENT				
Step	Signal Generator Connections	Generator & Receiver Frequency	Band Selector Setting	Adjust for Maximum Output
1	Highside thru .02 mfd capacitor to pin 8 of 6SA7 converter tube (V-2); low side to chassis.	Gen. - 455 KC Rec. - 1.0 MC	1	Top and bottom slugs of T1 (1st IF), T2 (2nd IF), and T3 (3rd IF).
2	Same as Step 1.	Gen. - 455 KC (Unmod.) Rec. - 1.0 MC	1	*Remove PITCH CONTROL knob and set AM-CW switch at "CW". Using speaker as indicator, adjust L11 (BFO) for "zero beat". After completing the adjustment replace knob with indicator line in top center position and return AM-CW switch to "AM".
*After removing the PITCH CONTROL knob (with the knob indicator line in the top center position), loosen set screw attaching the sleeve shaft to the BFO iron core adjustment screw. The position of the flat on the sleeve shaft <u>must</u> be maintained while adjusting for a zero beat.				
RF ALIGNMENT				
3	Highside thru RTMA dummy antenna (Fig. 8) to antenna terminal "A1"; low side to "A2". Jumper between "A2" and "C".	Rec. - 28.0 MC	4	C19 (osc. trimmer) C12 (mixer trimmer) C1 (antenna trimmer)
		Rec. - 14.0 MC	4	L7 (osc. slug) L4 (mixer slug) L1 (antenna slug)
4	Same as Step 3.	Rec. - 11.0 MC	3	C20 (osc. trimmer) C13 (mixer trimmer) C2 (antenna trimmer)
		Rec. - 5.1 MC	3	L8 (osc. slug) L5 (mixer slug) L2 (antenna slug)
5	Same as Step 3.	Rec. - 4.0 MC	2	C21 (osc. trimmer) C14 (mixer trimmer) C3 (antenna trimmer)
		Rec. - 1.8 MC	2	L9 (osc. slug)
6	Same as Step 3.	Rec. - 1.4 MC	1	C22 (osc. trimmer) C15 (mixer trimmer) C4 (antenna trimmer)
		Rec. - .6 MC	1	C25 (osc. paddler)

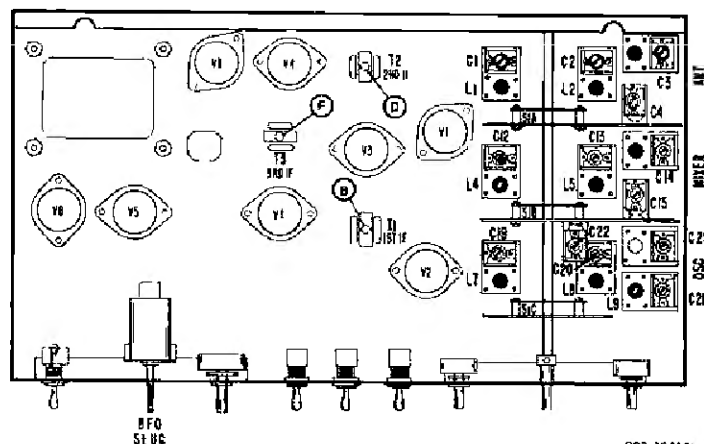


Figure 7. Bottom View Chassis Tube Locations and Alignment Points.

SERVICE PARTS LIST

Schematic Symbol	Description	Hallicrafters Part Number	Schematic Symbol	Description	Hallicrafters Part Number	Schematic Symbol	Description	Hallicrafters Part Number
CAPACITORS			RESISTORS (CONT.)			TUBES AND DIAL LAMPS		
C1 12	4-80 mmf. Mica Trimmer	044-100385	R20	500K ohm, variable, VOLUME control	025-201748	V1	6SG7; RF Amplifier	990-901181
C2 13	5-30 mmf. Mica Trimmer	044-100386	R21	150 ohm, 20%	451-253151	V2	6SA7; Converter	990-901180
C3 14	1-5-15 mmf. Mica Trimmer	044-200147	R22 80	270K ohm	451-253274	V3 4	6SK7; 1st and 2nd IF Amplifiers	090-901233
C4 15 22	2-20 mmf., Mica Trimmer	044-100101	R23 34	470K ohm, 20%	451-253474	V5	6SC7; BFO and Audio Amplifier	090-900874
C5A B C	Variable Capacitor, 3 section; Bandspread Tuning (puller included)	948-200440	R24	560 ohm, 1 Watt	451-252501	V6	6K6GT; Audio Output	090-900856
C7A B C	Variable Capacitor, 3 section; Main Tuning (puller included)	048-100448	R25	15K ohm, 20%, 1 Watt	451-253153	V7	6H8; Detector, AFL and AVC	090-900847
C8 32 35, 38, 60	.05 mfd., +20, -10%, 200V., Tubular	499-012503	R27 66	47K ohm, 1 Watt	451-253473	V8	6Y3GT; Rectifier	090-901111
C9 28	.05 mfd., +20, -10%, 600V. Tubular	499-032503	R28	22K ohm, 20%	451-253223	LM2	Lamp, Dial, Type 44	039-100003
C10	22 mmf. N750 Cer. Tubular	491-107220-05	R30 68	10 ohm, 20%	451-253100	LM3	Lamp, Dial, Type 47	039-100004
C11	2.2 mmf., Neutralizing	047-200160-04	R32	1-5K ohm, 10 Watt W.W.	445-032152	KNORBS		
C16	350 mmf., 10%, 500V., Mica	470-213301	R33	15 megohm, 20%	451-253156	Knob, VOLUME	015-001451	
C17 43	9-01 mfd., +20, -10%, 600V., Tubular	499-032103	R35	27 ohm	451-252276	Knob, BAND SELECTOR and PITCH CONTROL	015-001725	
C18	150 mmf. 5%, 500V., Mica	470-222151	R62	560K ohm	451-252564	Knob, SENSITIVITY and PWR-OFF TONE	015-001724	
C19	4-70 mmf., Mica Trimmer	044-100148	R63	6.8 ohm, 1 Watt	451-252088	Knob, MAIN TUNING and BANDSPREAD	015-001491	
C20 21	2-30 mmf.; Mica Trimmer	044-100148	R64	330 ohm	451-252331	MISCELLANEOUS PARTS		
C23	3300 mmf. 5%, 500V., Mica	470-422332	R67	330K ohm	451-252334	Cabinet Assembly	056-402482	
C24	1500 mmf. 2%, 500V. Mica	470-421152	R70	47 ohm, 1 Watt	451-352470	Chp. Window Retainer	075-100653	
C25	320-520 mmf. Mica Padder	044-100394	**COILS AND TRANSFORMERS			Dial Cord (MAIN TUNING)	038-100036	
C27A B C	30-10-10 mfd., 450V. Electrolytic	045-100062	L1	Coil, Antenna (Band 4) Inc. C1	051-201907	Dial Cord (BANDSPREAD)	038-100040	
C28 33	220 mfd., 10%, 500V., Mica	470-213221	L2	Coil, Antenna (Band 3) Inc. C2	051-201908	Dial, MAIN TUNING	083-400702	
C31 47	.02 mfd., +20, -10%, 200V., Tubular	499-012203	L3	Coil, Antenna (Bands 1 and 2) Inc. C3	051-201909	Dial Plate Assembl.	083-304152	
C38	2 mmf. Wire Glimmick	-----	L4	Coil, Mixer (Band 4), Inc. C12	051-201905	Dial Window, BANDSPREAD	083-500717	
C39	1 mfd., +20, -10%, 600V., Tubular	499-032104	L5	Coil, Mixer (Band 3) Inc. C13	051-201906	Front Rubber	016-100007	
C41 42	47 mmf. 20%, 500V., Mica	470-214470	L6	Coil, Mixer (Bands 1 and 2) Inc. C14	051-201904	Front Panel Assembly	068-500002	
C44 56	270 mmf. 10%, 500V., Mica	470-213271	L7	Coil, Oscillator (Band 4); Inc. C19	051-201900	Line Cord Lock, Male	078-100397-01	
C45 48 52 63	.02 mfd., +20, -10%, 800V. Tubular	499-032203	L8	Coil, Oscillator (Band 3); Inc. C20	051-201899	Line Cord Lock, Female	078-100397-02	
C47	.0022 mfd., +20, -10%, 1000V., Tubular	499-042222	L9	Coil, Oscillator (Band 2) Inc. C21	051-201898	Shaft, Drive BANDSPREAD	062-200426	
C54	470 mmf., 20%, 500V., Mica	470-212471	L10	Coil, Oscillator (Band 1), Inc. C25	051-201897	Shaft, Drive (BANDSPREAD)	074-202274	
C56	.01 mfd. 20%, 1400V., Cer. Disc	047-001309	L11	Coil, BFO	051-201897	Spring (BANDSPREAD)	375-160012	
C57	.001 mfd., 20%, 500V., Mica	470-214102	TL 2	Transformer, 1st and 2nd IF	054-200051	Spring (MAIN TUNING)	975-100123	
C61	.25 mfd., +20, -10%, 200V., Tubular	499-012254	TJ	Transformer, 1F, detector stage	050-300242	Terminal Board Antenna	088-100032	
C64	10 mfd., 25V., Electrolytic	045-100121	T4	Transformer, Audio Output	055-100415	Trim Strip	067-400739	
*RESISTORS			T5	Transformer, Power	052-100209	Speaker, 3.2 ohm	065-400201	
R1 81	1 megohm, 20%	451-253105	**COILS LI THROUGH L10 are supplied complete with trimmer capacitor. Trimmers are also available separately. See "Capacitors"					
R2	120 ohm	451-252121	SWITCHES					
R3	10K ohm, variable; SENSITIVITY control	025-201750	S1A	Wafer Switch, Antenna	060-200389			
R4 31	22 ohm, 20%	451-253220	S1B	Wafer Switch, Mixer	062-200039			
R5	39K ohm, 1 Watt	451-353393	S1C	Wafer Switch, Oscillator	062-200044			
R6 26	6.8K ohm, 1 Watt	451-352682	S2, 3, 5, 6	Switch, SPST Toggle; STANDBY-REC, NOISE LIMITER, AVC, and AM-CW	060-100138			
R7	22K ohm	451-252223	S4	Switch, Rotary; PWR-OFF TONE	060-202115			
R8	16K ohm, 2 Watt	451-652103		Shaft, Bandswitch and Index Plate	060-200392			
R9 11	470 ohm	451-252471	JACKS, PLUGS, AND SOCKETS					
R10	12K ohm 4 Watt W.W.	024-101062	J1	Jack, PHONES	036-100002			
R12 69	2.2 megohm, 20%	451-253225	PL1	Line Cord and Plug Assy	087-100078			
R14	47K ohm, 20%	451-253473		Socket, Dial Lamp Assy	086-300478			
R15 29 58	100K ohm, 20%	451-253104		Socket, Tube, Octal (V1 thru V8)	006-100250			
R16 66	1K ohm	451-252102						

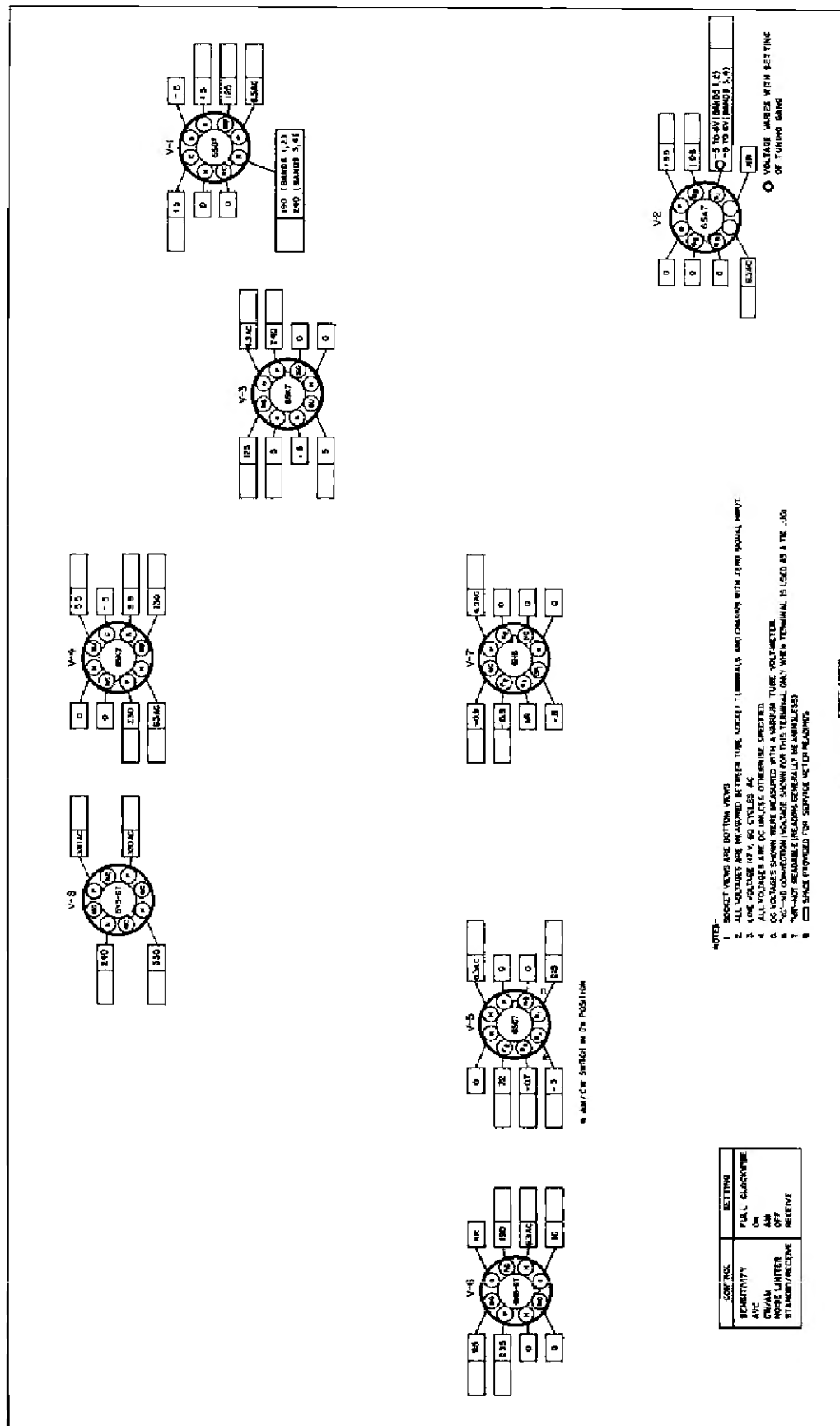
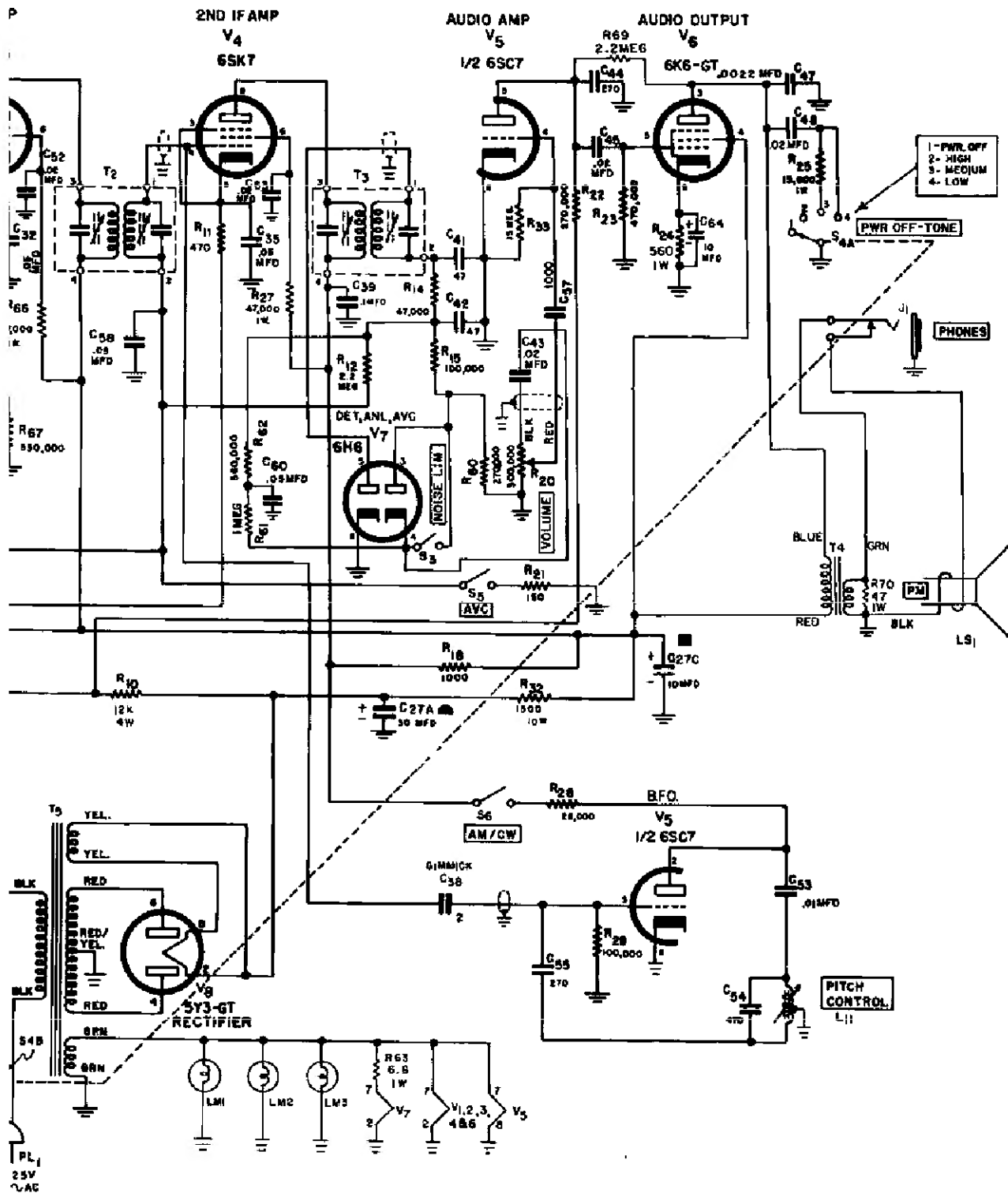


Figure 9. Model S-108 Voltage Chart.



LAST R SYMBOL R-70
LAST G SYMBOL G-64

089-401434 D

matic Diagram.

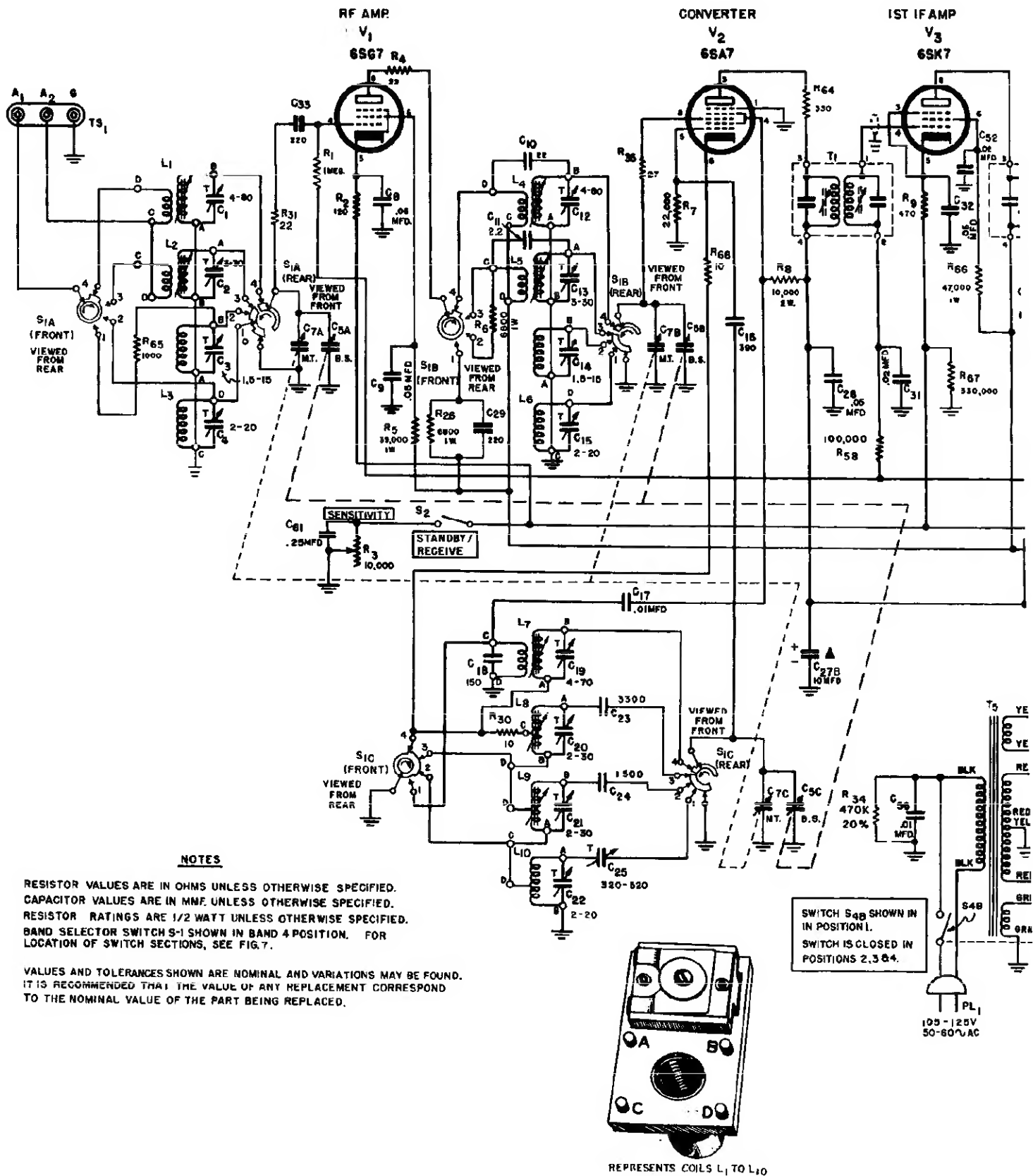


Figure 10. Model S-108 Schematic Diagram

Warranty

The Hallicrafters Company warrants each new radio product manufactured by it to be free from defective material and workmanship and agrees to remedy any such defect or to furnish a new part in exchange for any part of any unit of its manufacture which under normal installation, use and service discloses such defect, provided the unit is delivered by the owner to the authorized radio dealer, wholesaler, from whom purchased or, authorized service center, intact, for examination, with all transportation charges prepaid within ninety days from the date of sale to original purchaser and provided that such examination discloses to our judgment that it is thus defective.

This warranty does not extend to any of our radio products which have been subjected to misuse, neglect, accident, improper wiring not our work, improper installation, or to use in violation of instructions furnished by us, nor extend to units which have been repaired or altered outside of our factory or authorized service center nor to cases where the serial number thereof has been removed, defaced or changed nor to accessories used therewith not of our own manufacture.

Any part of a unit approved for remedy or exchange hereunder will be remedied or exchanged by the authorized radio dealer or wholesaler without charge to the owner.

This warranty is in lieu of all other warranties expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our radio products."

Form No. 933422

the Hallicrafters co.